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Worldwide Locations

EPRI Examines Converting Local Electric Systems to Direct Current

August 9, 2006 // *Published as a news service by* IHS

The Electric Power Research Institute (EPRI) is examining whether future business and consumer appliances and devices can be made more energy efficient by eliminating the conversion of direct current (DC) power to alternating current (AC) power.

According to EPRI, an increasing number of microprocessor-based electronic devices use DC power converted from standard AC supply. Other devices, such as variable speed drives for motors, ballasts for fluorescent lights and other equipment can also run on DC power.

The migration to DC distribution may extend to residential dwellings as an increasing number of electronic devices and appliances become available that could run on DC power.

EPRI is working on a series of projects to examine whether eliminating DC-AC converters can be more efficient and practical. At a recent EPRI workshop in Washington D.C., engineers estimated that $115 in electricity savings, per server, per year, could be achieved with DC power delivery.

With an estimated nine million servers now operating in the U.S., that translates into more than $1B in power savings annually, and millions of dollars saved for each large data center.

In an ongoing effort to provide critical information to energy and utility decision makers, EPRI published *DC Power Production, Delivery and Utilization*, a white paper that reviews the potential for increased reliance on DC power systems, as well potential challenges to its adoption.

EPRI is working with Lawrence Berkeley National Laboratory and Ecos Consulting to assess the feasibility of a DC-powered demonstration at the Sun Microsystems Newark data center in California. The project hopes to demonstrate how DC-powered servers or server racks can be operated from existing components, providing the same functionality with minimal effort. Efficiency gains from elimination of multiple AC-DC conversion steps will also be measured.

"Data centers are a potential near-term application of DC power delivery, as they have an economic imperative to increase energy efficiency and power reliability," said EPRI's Vice President of Innovation Clark Gellings. "Data centers may house thousands of racks of multiple servers and other computing devices. The density of these servers keeps increasing, wasting power and generating heat with multiple AC to DC conversions. Eliminating AC to DC conversions could reduce inefficiencies in powering the servers, and reduce cooling loads significantly."

Source: Electric Power Research Institute (EPRI).

ENERGY & PETROCHEM ENGINEERING STANDARDS NEWS

DOE Selects Six Methane Hydrate Projects Aug 14, 2006
The U.S. Department of Energy (DOE) announced the selection of six cost-shared research and development projects that seek to unlock a potential source of hydrocarbon energy: methane hydrate.

DOE Tracks Planned Coal-Fired Power Plants Aug 14, 2006
The U.S. Department of Energy (DOE) announced that 153 new coal-fired plants and 93 gigawatts of capacity are expected to be built by 2025.

DOE Awards $3.3M for Advanced Remediation Technology Contracts Aug 14, 2006
The U.S. Department of Energy (DOE) Office of Environmental Management (EM) awarded 12 contracts totaling $3.3M to support the development of technologies that have the potential to reduce cleanup costs and increase the safety and efficiency of treating and disposing of radioactive waste.

DOE Releases National Electric Transmission Congestion Study Aug 14, 2006
The U.S. Department of Energy (DOE) released the *National Electric Transmission Congestion Study* authorized under the Energy Policy Act.

Frost: Power Generation Industry Focuses on Reducing Emission Levels Aug 10, 2006
Pollution control technologies play a vital role in promoting a healthy environment.

DOE to Invest $250M in New Bioenergy Centers Aug 10, 2006
The U.S. Department of Energy (DOE) will spend $250M to establish and operate two new Bioenergy Research Centers to accelerate basic research on the development of cellulosic ethanol and other biofuels.

FutureGen Alliance Announces Final Candidate Host Sites Aug 9, 2006
The FutureGen Alliance announced its short list of candidate sites for a $1B first-of-its-kind, low emissions coal-fueled power plant.

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